

SOME REFERENCES TO THE GENUS OLIVA.

BY JOHN FORD.

Of all the marine univalves the Olives are perhaps among the most difficult to define specifically. It is true that the most irregular forms can in some instances be readily determined and properly placed by expert conchologists, for however greatly they may differ from the accepted types, certain characters, proving a common origin, are always perceivable. This is especially the case with such species as *O. inflata* Lam., *O. maura* Lam., and *O. peruviana* Lam. (Fig. 1).

To other species, however, many shells have been assigned which are apparently devoid of characters necessary to sustain the relationship claimed for them. In this group may be included *O. araneosa* Lam., *O. irisans* Lam., *O. ispidula* Linn., and *O. reticularis* Lam. So variable both in form and color patterns are many of the shells assigned to these four species, it is not at all strange that they have been honored with scores of specific names. That a majority of these names are synonymous there is no reason to doubt, but it seems equally apparent that quite a number of the shells, the names of which have been thus subordinated, are really specifically distinct from the types with which they are associated.

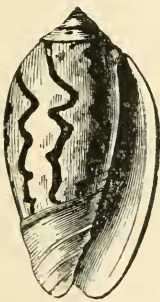


FIG. 1.

O. peruviana Lam.

FIG. 2.

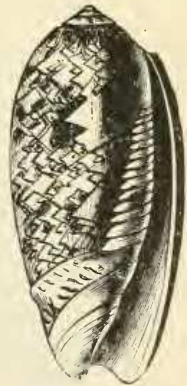
O. erythrostoma Lam.

FIG. 3.

O. porphyria Lam.

Among these may be noted *O. ornata* Marratt and *O. julietta* Duclos, which some recent writers have determined to be varieties only, the former of *O. irisans*, the latter of *O. araneosa*. If there

is an affinity between these so-called varieties and the species mentioned, I have failed to discover it, though in possession, perhaps, of every form of the shells in question known to science.

Certain writers also claim that the difference between *O. irisans* and *O. textilina* Lam. is merely varietal. Possibly this may be true; still, the facts do not appear to favor any such conclusion. On the contrary, the characters exhibited by large numbers of each clearly show them to be specifically distinct.

It is just possible that intervening forms linking the two together are known, such for instance, as those uniting the typical *O. irisans* with its admitted varieties *O. zelanica* Lam., *O. tremulina*, Lam., and *O. erythrostoma* Lam. (Fig. 2), but if so they are certainly absent from the several large collections of Olives belonging to members of the American Association of Conchologists and the Philadelphia Academy of Natural Sciences. These are but a few samples of the difficulties at present barring the way to a thorough comprehension of the specific relationship of the various members of the genus. The presence of such obstacles, however, should be to the earnest student more of a pleasure than an annoyance, since any effort for their removal will surely give him ample opportunity to exercise both his judgment and powers of observation. Despite the individual vagaries referred to, the genus is a thoroughly attractive one, many of the species, indeed, being unsurpassed in

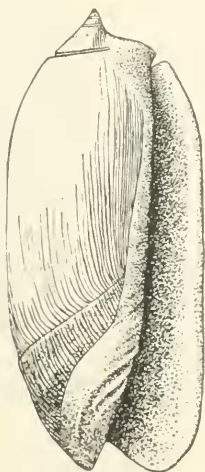


FIG. 4 *O. cryptospira* Ford.



FIG. 5.

richness of color and perfection of form by even the more pretentious members of the genus *Cypria*.

Among the most charming of the 55 or 60 accepted species, *O. porphyria* Lam. (Fig. 3) may be safely reckoned. These are the "tent shells" of the amateur collector, being so-called from the peculiar patterns which often cover the surface in such profusion as to suggest a large military encampment, including the marquees supposed to be necessary for official comfort, etc.

The ground color, on which these tent-like figures appear, is of a deep chocolate hue and exceedingly brilliant. Add to this the graceful form of the shell and we may readily see that the combination presents a picture of the utmost beauty.

O. cryptospira Ford (Figs. 4, 5) is smaller and less charming in appearance than *O. porphyria*, but the callus-covered spire and enamelled body whorl make it a very interesting species. The type of this is in my own collection. There is, however, a fine suite of typical specimens in the Phila. Acad. Nat. Sciences, and, I think, a similar set in the U. S. National Museum at Washington.

DESCENT AND DISTRIBUTION OF UNIONIDÆ.

BY BERLIN H. WRIGHT, PENN YAN, N. Y.

It must be admitted that the Unionidæ are under the same natural laws, and occult forces, that have operated for vast ages on all animal and vegetal life. Fossilized Unios are found in several geological formations, and all living Unios are their descendants, or else they are new creations. But no evidence sustains the theory of successive creations. On the contrary, we behold everywhere successive new but related forms of descent on divergent lines. Nowhere is this astonishing fact better exemplified than in the numerous species of Unionidæ. But what causes the new forms? If not direct creations—a baseless theory—they are the outcome of changed conditions of life or varying environments.

Geographical distribution furnishes such environments. The young fry of the Naiads have a byssus which generally disappears early and with this appendage they can and do attach themselves to the legs of ducks, wading birds and floating objects. They are then easily transported by the semi-annual bird migration, from river to river, and from lake to lake, and eventually to very remote